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CLAIM:

1. An injection molding process comprising the steps of:
- (a) providing a melt mixture including a powder and a binder;
 - (b) pressurizing said melt mixture in an injection molding
- 5 machine;
- (c) injecting a gas into said melt mixture;
 - (d) injecting said melt mixture and said gas into at least one mold to form a green part; and,
 - (e) removing said binder from said green part.
- 10 2. The process of claim 1 wherein said powder is selected from the group consisting of metal and ceramics.
3. The process of claim 1 wherein said binder consists of an organic polymer.
4. The process of claim 1 wherein said green part has a porosity
- 15 of at least 10% by volume.
5. The process of claim 4 wherein said green part has a porosity of 20% by volume.
6. The process of claim 1 wherein said gas is injected into said melt mixture while said melt mixture is in said injection molding machine.
- 20 7. The process of claim 3 wherein said binder is removed from said green part by heating said green part.
8. The process of claim 1 wherein said gas is selected from the group consisting of nitrogen, carbon dioxide and supercritical fluids of atmospheric gases.

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9. In an injection molding machine having a barrel, said barrel having a nozzle opening at one end, a feedstock hopper in fluid communication with the interior of said barrel and spaced from said nozzle opening, a heater for heating feedstock in said barrel into a melt, and
5 injection means for injecting melt from said barrel said nozzle, the improvement comprising:

at least one orifice in said barrel connectable to a source of pressurized gas so that gas is injectable under pressure from said source into said melt in said barrel.

- 10 10. A method of molding a powder based material comprising the steps of:

- providing a powder material
- providing a binding material
- mixing said powder material and said binding material to

- 15 form a feedstock material

- transforming said feedstock material into a melt feedstock material

- adding a pressurized gas into said melt feedstock material to form a melt porous feedstock material

- 20 - introducing said melt porous feedstock material into a cavity mold to form a green porous part having the shape of the mold

- removing said binding material, through the pores from said green porous part, in order to form a solid porous material.

11. A method of molding a powder based material comprising the
25 steps of:

- providing a feedstock material made of a powder material and a binding material

- transforming said feedstock material into a melt feedstock material

- 30 - adding a pressurized gas into said melt feedstock material to

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form a melt porous feedstock material

- introducing said melt porous feedstock material into a cavity mold to form a green porous part having the shape of the mold

- removing said binding material, through the pores from said
5 green porous part, in order to form a solid porous material.

12. An apparatus for molding a powder based material comprising:

- a device to mix a powder material and a binding material and to obtain a feedstock material

10 - a device to turn said feedstock material into a melt feedstock material

- a source of a pressurized gas

- a device to introduce said pressurized gas into said melt feedstock material to form a melt porous feedstock material

15 - a mold to receive said melt porous feedstock material to create a porous green part having the shape of the mold.

13. An apparatus for molding a powder based material comprising:

20 - an injection molding machine to process a feedstock material made of a powder material and a binder material

- a source of a pressurized gas

- a device to introduce said pressurized gas into said melt feedstock material to form a melt porous feedstock material

25 - an injection mold to receive said melt porous feedstock material to create a porous green part having the shape of the mold.

14. A green molded article made of a powder material, a binder and having pores, wherein said pores have been created during an injection molding process and wherein a gas has been added inside an injection molding barrel during the injection molding process to create said pores.

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